

What is claimed is:

1 1. A method of forming a multi-media communication path between at least a first  
2 communication device and at least a second communication device, the method  
3 comprising:

4 receiving a first Session Initiation Protocol (SIP) INVITE message at a call  
5 control element of a multi-media provider representing a first call request for a first  
6 predetermined multi-media service;

7 redirecting the first SIP INVITE message to a service broker associated with the  
8 multi-media provider for processing the first SIP INVITE message for determining at  
9 least a first predetermined application server of a plurality of application servers  
10 associated with the multi-media provider which includes first predetermined resources for  
11 processing the first SIP INVITE message;

12 receiving a first SIP Redirect message at the call control element from the service  
13 broker responsive to the first SIP INVITE message;

14 processing the first SIP Redirect message at the call control element to generate a  
15 second SIP INVITE message and including a multi-media service identifier;

16 receiving and processing the second SIP INVITE message at the first  
17 predetermined application server for determining if the first predetermined application  
18 server includes resources for satisfying the first call request; and

19 setting the multi-media service identifier to a first predetermined state if it is  
20 determined that the first predetermined application server includes resources for  
21 satisfying the first call request and setting the multi-media service identifier to a second  
22 predetermined state if it is determined that the first predetermined application server does  
23 not include resources for satisfying the first call request.

1 2. The method of claim 1, wherein if the multi-media service identifier is set to the  
2 first predetermined state representing that the first predetermined application server  
3 includes resources for satisfying the first call request, the method further includes:

4 processing the second SIP INVITE message at the predetermined application  
5 server using the first predetermined resources to satisfy the first call request;

6 receiving a second SIP Redirect message at the call control element from the  
7 predetermined application server responsive to the second SIP INVITE message and  
8 including the multi-media service identifier set to the first predetermined state;  
9 detecting the first predetermined state of the multi-media service identifier at the  
10 call control element;  
11 querying the service broker to determine whether the first call request requires  
12 further processing using other predetermined resources associated with another  
13 application server of the plurality of application servers; and  
14 processing the first call request at another application server of the plurality of  
15 application servers if the service broker determines that the first call request requires  
16 further processing.

1 3. The method of claim 2, further including:

2 repeating querying the service broker until it is determined that the first call  
3 request no longer requires further processing using other predetermined resources  
4 associated with another application server of the plurality of application servers.

1 4. The method of claim 3, further including:

2 generating a third SIP INVITE message at the call control element responsive to a  
3 communication by the service broker representing that the first call request no longer  
4 requires processing;

5 receiving and processing the third SIP INVITE message at a network routing  
6 element associated with the multi-media services provider to determine an address  
7 associated with at least one border element of a plurality of border elements located on  
8 the multi-media services provider for which the second communication device is  
9 coupled; and

10 receiving a third SIP Redirect message at the call control element from the  
11 network routing element responsive to the third SIP INVITE message and including the  
12 address associated with at least one border element; and

13           generating and sending a fourth SIP INVITE message to the at least one border  
14   element for forming the multi-media communication path between the first  
15   communication device and the second communication device.

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1    5.     The method of claim 1, wherein setting the multi-media service identifier to the  
2   first predetermined state includes setting a backhaul indicator to null.

1    6.     The method of claim 1, wherein setting the multi-media service identifier to the  
2   first predetermined state includes setting the multi-media service identifier to a  
3   geographic location parameter representing a location of a calling party operating at the  
4   first communication device.

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1    7.     The method of claim 6, wherein the geographic location parameter is determined  
2   from a Charge Number associated with the calling party operating at the first  
3   communication device.

1    8.     The method of claim 6, wherein the geographic location parameter is determined  
2   from a network database based on the Charge Number.

1    9.     The method of claim 1, wherein processing the second SIP INVITE message at  
2   the predetermined application server includes classifying the second SIP INVITE  
3   message based on a distinction between toll calls and local calls.

1    10.    The method of claim 1, wherein processing the second SIP INVITE message at  
2   the predetermined application server includes classifying the second SIP INVITE  
3   message based on a distinction between local calls, intraLATA toll calls, and interLATA  
4   toll calls.

1    11.    The method of claim 1, wherein setting the multi-media service identifier to the  
2   second predetermined state includes setting a backhaul indicator to backhaul.

1 12. The method of claim 1, wherein determining if the first predetermined application  
2 server includes resources for satisfying the first call request includes comparing a first  
3 toll-free number associated with the second SIP INVITE message to a second toll-free  
4 number associated with the first predetermined application server.

1 13. The method of claim 1, wherein if the multi-media service identifier is set to the  
2 second predetermined state representing that the first predetermined application server  
3 does not include resources for satisfying the first call request, the method further  
4 includes:  
5 receiving a second SIP Redirect message at the call control element from the  
6 predetermined application server responsive to the second SIP INVITE message and  
7 including the multi-media service identifier set to the second predetermined state;  
8 detecting the second predetermined state of the multi-media service identifier at  
9 the call control element; and  
10 generating a third SIP INVITE message at the call control element responsive to  
11 detecting the second predetermined state of the multi-media service identifier.

1 14. The method of claim 13, further including:  
2 receiving and processing the third SIP INVITE message at a network routing  
3 element associated with the multi-media services provider to determine an address  
4 associated with at least one border element of a plurality of border elements located on  
5 the multi-media services provider for which a local exchange carrier is coupled, wherein  
6 the processing includes determining porting information which relates to whether or not  
7 the primary routing number has been ported from one local carrier to another local carrier  
8 and communicating the porting information in the third SIP Redirect message  
9 communicated to the call control element; and  
10 receiving a third SIP Redirect message at the call control element from the  
11 network routing element responsive to the third SIP INVITE message and including the  
12 address associated with at least one border element for which a local exchange carrier is  
13 coupled;

generating a fourth SIP INVITE message at the call control element and including the address associated with at least one border element for which a local exchange carrier is coupled; and

sending the fourth SIP INVITE message to the at least one border element for forming a multi-media communication path between the first communication device and the second communication device, via the local exchange carrier.

15. A method of forming a multi-media communication path between at least a first communication device and at least a second communication device, the method comprising:

receiving a first Session Initiation Protocol (SIP) INVITE message at a call control element of a first carrier representing a first call request for a first predetermined multi-media service;

redirecting the first SIP INVITE message to a service broker associated with the first carrier for processing the first SIP INVITE message for determining an address of a remote application server associated with an industry toll-free database;

receiving a first SIP Redirect message at the call control element from the service broker responsive to the first SIP INVITE message and including the address of the remote application server;

processing the first SIP Redirect message at the call control element to generate a second SIP INVITE message and including the address of the remote application server; and

receiving and processing the second SIP INVITE message at the remote application server for determining an identifier associated with at least one carrier which includes resources for satisfying the first call request.

16. The method of claim 15, further including:

receiving a second SIP Redirect message at the call control element from the remote application server responsive to the second SIP INVITE message and including

5 the identifier of the at least one carrier which includes resources for satisfying the first  
6 call request.

1 17. The method of claim 16, further including:

2 generating a third SIP INVITE message at the call control element and including  
3 the identifier of the at least one carrier which includes resources for satisfying the first  
4 call request; and

5 receiving and processing the third SIP INVITE message at the service broker to  
6 determine whether the identifier of the at least one carrier is associated with the multi-  
7 media provider.

1 18. The method of claim 17, wherein if service broker determines that the identifier of  
2 the at least one carrier is associated with the multi-media provider, the method further  
3 includes:

4 receiving a third SIP Redirect message at the call control element from the service  
5 broker responsive to the third SIP INVITE message;

6 processing the third SIP Redirect message at the call control element to generate a  
7 fourth SIP INVITE message and including an address associated with a first  
8 predetermined application server of a plurality of application servers associated with the  
9 multi-media provider which includes resources for processing the first call request;

1 19. The method of claim 17, further including:

2 receiving and processing the fourth SIP INVITE message at the first  
3 predetermined application server using resources of the first predetermined application  
4 server to satisfy the first call request;

5 generating a fourth SIP Redirect message at the first predetermined application  
6 server;

7 receiving and processing the fourth SIP Redirect message at the call control  
8 element from the first predetermined application server responsive to the fourth SIP  
9 INVITE message;

10            querying the service broker to determine whether the first call request requires  
11 further processing using other predetermined resources associated with another  
12 application server of the plurality of application servers associated with the multi-media  
13 provider; and

14            processing the first call request at another application server of the plurality of  
15 application servers if the service broker determines that the first call request requires  
16 further processing.

1        20.    The method of claim 19, further including:

2            repeating querying the service broker until it is determined that the first call  
3 request no longer requires further processing using other predetermined resources  
4 associated with another application server of the plurality of application servers.

1        21.    The method of claim 20, further including:

2            generating a fifth SIP INVITE message at the call control element responsive to a  
3 communication by the service broker representing that the first call request no longer  
4 requires processing;

5            receiving and processing the fifth SIP INVITE message at a network routing  
6 element associated with the multi-media services provider to determine an address  
7 associated with at least one border element of a plurality of border elements located on  
8 the multi-media services provider for which the second communication device is  
9 coupled; and

10          receiving a fifth SIP Redirect message at the call control element from the  
11 network routing element responsive to the fifth SIP INVITE message and including the  
12 address associated with at least one border element; and

13          generating and sending a sixth SIP INVITE message to the at least one border  
14 element for forming the multi-media communication path between the first  
15 communication device and the second communication device.

1 22. The method of claim 17, wherein if service broker determines that the identifier of  
2 the at least one carrier is not associated with the multi-media provider, the method further  
3 includes:

4 receiving a third SIP Redirect message at the call control element from the service  
5 broker responsive to the third SIP INVITE message and including an identifier associated  
6 with another carrier which includes resources for processing the first call request; and

7 processing the third SIP Redirect message at the call control element to generate a  
8 fourth SIP INVITE message and including the identifier associated with another carrier  
9 which includes resources for processing the first call request.

1 23. The method of claim 22, further including:

2 receiving and processing the fourth SIP INVITE message at a network routing  
3 element associated with the multi-media services provider to determine an address  
4 associated with at least one border element of a plurality of border elements located on  
5 the multi-media services provider for which another carrier is coupled; and

6 receiving a fourth SIP Redirect message at the call control element from the  
7 network routing element responsive to the fourth SIP INVITE message and including the  
8 address associated with at least one border element; and

9 generating and sending a fifth SIP INVITE message to the at least one border element for  
10 forming the multi-media communication path between the first communication device  
11 and another carrier.

1 24. A method of forming a multi-media communication path between at least a first  
2 communication device and at least a second communication device, the method  
3 comprising:

4 receiving a first Session Initiation Protocol (SIP) INVITE message at a call  
5 control element of a first carrier representing a first call request for a first predetermined  
6 multi-media service; and

7 processing the first SIP INVITE at the call control element to generate a second  
8 SIP INVITE message and including an address associated with an industry toll-free  
9 database via a signaling gateway.



1 25. A method for providing combined local service, toll service, and toll free service  
2 to a calling party originating calls from an IP-based communication device connected to a  
3 multi-media provider, the method comprising

4 a) receiving at the multi-media provider a call including a Collected Address  
5 parameter which is associated with the calling party;

6 b) associating a Charge Number with the call based predetermined attributes of the  
7 calling party;

8 c) querying a first network database located on the multi-media provider to identify  
9 a first service based on characteristics of at least one of the Calling Party and the  
10 Collected Address parameter;

11 d) processing the first service at the multi-media provider for classifying the call into  
12 a jurisdictional classification based on a calling party geographic location and a  
13 destination address geographic location derived from the Collected Address parameter;

14 e) returning recording and routing information based on the jurisdictional  
15 classification of the call from the network database to a call control element located on  
16 the multi-media provider;

17 f) querying a second network database located on the multi-media provider to  
18 resolve the routing address to a specific network gateway and determining whether or not  
19 the routing address has been ported, and if so, determining the ported number; and

20 g) recording and routing the call based on the jurisdictional classification of the call.

1 26. The method of claim 25, further comprising processing a second service based on  
2 at least one parameter selected from the group of Charge Number, Collected Address,  
3 Jurisdictional Classification, Access Type derived from the Border Element ID and  
4 Carrier.

1 27. The method of claim 26, further comprising playing an announcement for  
2 invoking caller interaction with the calling party and collecting a response from the  
3 calling party to further process the call.

1 28. The method of claim 27, further comprising alternate routing where the second  
2 network database provides multiple route choices and conditions for using the multiple  
3 routes.

1 29. The method of claim 28, wherein classifying is performed from a routing  
2 perspective and a recording perspective.

1 30. An apparatus for providing combined communication services including local  
2 service, toll service, and Advanced Intelligent features within an IP-based multi-media  
3 service provider, comprising:

- 4 a) means for associating a call with a Charge Number based on trunk group data;  
5 identifying a connection through which the call was received; and  
6 b) means for classifying the call into a jurisdictional classification based on a Calling  
7 Party geographic location and a destination address geographic location derived from  
8 the Collected Address.